BACK BAY observer

The Official Newsletter of the Back Bay Amateur Astronomers
P.O. Box 9877, Virginia Beach, VA 23450-9877

EPHEMERALS
april 2014

4/03, 7:30 pm
BBAA Monthly Meeting
TCC Campus, VA Beach
Building J, Planetarium

4/05, 6:30 - 11:00 PM
Mt. Trashmore Star Party
Virginia Beach, VA

4/11, 8:00 PM
Garden Stars
Norfolk Botanical Garden

4/12, 11:00 AM
Outreach Event
Carrollton Library

4/18, 7:30 PM
Skywatch
Northwest River Park

4/26
Nightwatch
Chippokes Plantation
Surry, VA

Looking Up!

Well, it is April already and so far this year we have been pretty much out of luck with getting nights that are nice for observing. I'm not saying that we haven't had any, but for those of us still in the work force, we really need those nights to line up with a weekend a bit better.

Recently, we had our March Skywatch at Northwest River Park, and I have to say that I was very pleased with the number of members who turned out for the evening. We had 13 telescopes set up for guests to look though! It also was real nice to see that we had a good mix of old and new members on hand to share the views. We all had a pretty good time too, since the weather was nice and it didn't get that cold for us. I hope that the momentum for participation continues to grow.

This month, our monthly meeting will be held in the Tidewater Community College Planetarium on the Virginia Beach campus in the science building and not in the classroom as normal. Professor Kenny Broun has a new 3D show for us, so we figured that we might as well start off there. I am still working on getting a speaker for the May meeting, but I do have Dr. John McNabb, from Hampton University lined up for a future meeting to come and discuss the AIM project and his research into Gravity Waves.

Then on this coming Saturday (April 5, 2014) we have the Mt. Trashmore Star Party. I cannot stress enough to all who plan to help and bring equipment that this event is not one you want to be late for. If you are not there by 6:30PM you will have to ferry your gear back and forth from the parking lot, no exceptions.

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Astronomically, April will be a busy month. The big event is the total lunar eclipse that will occur in the early morning hours of April 15th. For more information on the eclipse be sure to visit the event link on our Night Sky Network page (you'll need to be logged in first).

https://nightsky.jpl.nasa.gov/club/event-view.cfm?Event_ID=54378 .

We are still working out the details for a club eclipse event with Bob Hitt at the Chesapeake Planetarium, so stay tuned. Unfortunately, I will not be in Hampton Roads that week, but will be observing it from Clovis, New Mexico while on vacation. Also, according to my phone app, the Lyrid meteor shower is active from April 16 to 25 with the peak coming on the morning of the 22nd, so let's hope for a clear night.

Finally, I would like to thank the other club officers for their hard work and dedication. Without each of us pulling our load, the club wouldn't be making the advances we are seeing, especially in terms of getting club members more active in outreach and other events. Go Team!

Until next month, clear skies….

Jim Tallman

March 6, 2014 Meeting Minutes

The March 2014 meeting was called to order at 7:31 PM in room JC-10 at TCC in Virginia Beach by President Jim Tallman.

Members in attendance were: Neill Alford, Bob Beuerlein, Kenny Broun, Brenda Butler, Scott Cadwell, Tom Flatley, Mike Galvas, Dean Giangregorio, Mary Giangregorio, Pete Goulart, Chuck Jagow, Karen Jagow, Chris Jarvis, Tom Jarvis, Leigh Anne Lagoe, Curt Lambert, Kirk Leppert, Matt McLaughlin, Bill McLean, Maya Ogaldez, Bruce Powers, Joey Quinn, George Reynolds, Mel Spruill, Kevin Swann, Jason Tackett, Jim Tallman, Paul Tartabini, Bird Taylor, and Christopher Weller. **Guests** were Kayleigh Forrest, Justin Knightes, Bill Moore, Mark Reehm, Ashton Temple, Kent Versland, and Chris Weller.

The meeting started with a drawing for a Sky & Telescope magazine. A second magazine was awarded to Bruce Powers for correctly identifying a "Hubble's Cat" cartoon image reference.

Vice President Report: Garden Stars for March 7th was canceled. VPAS will hold an observing event at Gosnold's Hope Park on March 7th.

Calendar discussed at meeting:

- 3/8 - Princess Anne Library Sleepover, 8:30-10PM
- 3/9 - Daylight Saving Time begins
- 3/10 - PTA Science Night at Deep Creek Elementary School, 6 - 7:45 PM
- 3/11 - Plaza Middle School Science Night, 6 - 7:45 PM
- 3/21 - Skywatch at Northwest River Park, dusk - midnight
- 3/27 - 3/30 - Staunton River Star Party
- 4/3 - BBAA Club Meeting at TCC VB Campus, 7:30 - 9 PM
- 4/5 - Mt. Trashmore Star Party, 6:30 - 11 PM
- 4/11 - Garden Stars at Norfolk Botanical Gardens, 8 - 10 PM
- 4/12 - Carrollton Library event in Carrollton, VA, 11 - 11:45 AM
- 4/15 - Total Lunar Eclipse, 1:57 AM - 5:46 AM
- 4/18 - Skywatch at Northwest River Park, 7:30PM
- 4/26 - Nightwatch at Chippokes Plantation State Park, 6:30 PM

ALCOR (Astronomical League Coordinator): Bill McLean reported that Paul Tartabini is the VPAS 2014 Grundland Messier Cup Champion.

Observing Reports:

- Leigh Anne Lagoe taught several after-school astronomy enrichment classes to elementary school students using tools from the Night Sky Network.
- Mr. Jarvis reported that he recently viewed two meteors.
- George Reynolds reported that the 4H Space Camp on February 22nd had a successful turnout. They had an indoor presentation, then viewed the Andromeda Galaxy, Jupiter, and toured the constellations with a green laser.
- There were more than 100 people that showed up at William and Mary's Newton Day event.
- Mary Giangregorio informed us that the city of Virginia Beach will be participating in Earth Hour on March 29th at 8:30 PM. All nonessential lights within the city are to be turned off.

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The Back Bay Amateur Astronomer's
Observer

The BBAA Observer is published monthly; the monochrome version is mailed to members who do not have internet access. Members who do have Internet access can acquire the full color version on the Internet at **http://www.backbayastro.org/observer/newsletter.shtml**

Please submit articles and items of interest no later than the date of the monthly meeting in order to be in the next month's edition.

Please submit all items to: bbaa.newsletter@gmail.com or BBAA Observer, P.O. Box 9877, Virginia Beach, VA

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BBAA Meetings

The BBAA meet the first Thursday of every month except for July. While school is in session, we meet at the VA Beach TCC Campus. The April 3, 2014 meeting will be held at TCC in Virginia Beach, Building J, Planetarium at 7:30 PM. Directions available at www.backbayastro.org .

BBAA Internet Links

BBAA Website
www.backbayastro.org

Yahoo! Groups
tech.groups.yahoo.com/group/backbayastro

BBAA Observer Newsletter
www.backbayastro.org/observer/newsletter.shtml

The Observer's Corner

Kent Blackwell snapped this picture of Iridium 34 as it passed over his rooftop in Virginia Beach.

Have you seen an Iridium flare before? Iridium refers to a constellation of 66 small communication satellites in low earth orbit. Like other satellites, the Iridiums can be observed regularly and are typically around 6th magnitude. Occasionally, their solar panels are oriented just right so that they catch the sun and 'flare up' in brightness for 5-20 seconds, sometimes as bright as magnitude –8, thirty times brighter than Venus! Kent's image beautifully shows a typical flare.

Check out www.heavens-above.com to find out when an Iridium flare will be seen close to your location. You'll also find information on viewing the International Space Station (ISS).

March Minutes, continued from page 2

Scholarship Report: Applications have been submitted to schools around the area with a deadline of May 1st.

Treasurer Report:

- Chuck Jagow reported that there is $1492.75 in the General Fund and $2389.67 in the Scholarship Fund, for a total of $3882.42.

Old Business:

- The incorporation certificate should arrive next week.
- Jim Tallman reminded the club to log their hours for any event they do, whether it's an NSN event or not. Also, be sure to log miles travelled as they are tax deductible.

New Business:

- BBAA will now be putting Virginia Peninsula Astronomy/Stargazer (VPAS) club events on the calendar so local people can find out about their events.
- Jim Tallman would like feedback from members about what we can do to get them more involved with public outreach.
- We would like to form a picnic committee to help organize the July picnic in Redwing Park.
- Bird Taylor and Kunio Sayanagi will be going to the RRRT on Fan Mountain on March 29th to do a status assessment of the equipment .

Meeting Presentation:

Going For a Swim in Europa's Ocean

Planetary Scientist, Dr. William B. Moore, from Hampton University discussed his research of Jupiter's icy moon, Europa. His research investigated the dynamics of the moon's interior.

Dr. Moore discussed the possibility of volcanism or tidal forces causing convection within the ice and bringing sulfate salts up from below. He also explained the many obstacles that would have to be overcome in the design of a mission to explore Europa's ocean, which is buried under as much as 16 kilometers of ice. Some examples of these obstacles include Jupiter's radiation belt, Europa's lack of an atmosphere, sublimating ice, the use of hydrobots, and difficulty in transmitting data.

Dr. Moore also briefly talked about the molten rock tides on Io, which move it's surface up and down by as much as 50 meters while it orbits Jupiter.

BBAA members listen intently as Dr. William Moore describes how Europa is a small rocky planet wrapped in a layer of water & ice. He went on to explain how some Galileo mission imagery suggests that the deep liquid ocean could be salty (i.e., full of sulfates). That fact, combined with the strong possibility that there is volcanism on the ocean floor, creates the potential for "exciting chemistry" in Europa's liquid water. Exciting because an abundance of life has been found around every black smoker (underwater volcano) that has been found on Earth.

Dr. Moore lays out the concept for a potential mission to Europa. Such a mission would have to overcome numerous obstacles, but the scientific payoffs would be enormous.

Minutes taken by Secretary Leigh Anne Lagoe

Note: Minutes were modified due to space constraints. Full minutes can be viewed at http://backbayastro.org/minutes/2014-03-minutes.pdf

NASA's Space Place

Surprising Young Stars in the Oldest Places in the Universe

By Dr. Ethan Siegel

Littered among the stars in our night sky are the famed deep-sky objects. These range from extended spiral and elliptical galaxies millions or even billions of light years away to the star clusters, nebulae, and stellar remnants strewn throughout our own galaxy. But there's an intermediate class of objects, too: the globular star clusters, self-contained clusters of stars found in spherically-distributed halos around each galaxy.

Back before there were any stars or galaxies in the universe, it was an expanding, cooling sea of matter and radiation containing regions where the matter was slightly more dense in some places than others. While gravity worked to pull more and more matter into these places, the pressure from radiation pushed back, preventing the gravitational collapse of gas clouds below a certain mass. In the young universe, this meant no clouds smaller than around a few hundred thousand times the mass of our Sun could collapse. This coincides with a globular cluster's typical mass, and their stars are some of the oldest in the universe!

These compact, spherical collections of stars are all less than 100 light-years in radius, but typically have around 100,000 stars inside them, making them nearly 100 times denser than our neighborhood of the Milky Way! The vast majority of globular clusters have extremely few heavy elements (heavier than helium), as little as 1% of what we find in our Sun. There's a good reason for this: our Sun is only 4.5 billion years old and has seen many generations of stars live-and-die, while globular clusters (and the stars inside of them) are often over 13 billion years old, or more than 90% the age of the universe! When you look inside one of these cosmic collections, you're looking at some of the oldest stellar swarms in the known universe.

Yet when you look at a high-resolution image of these relics from the early universe, you'll find a sprinkling of hot, massive, apparently young blue stars! Is there a stellar fountain of youth inside? Kind of! These massive stellar swarms are so dense -- especially towards the center -- that mergers, mass siphoning and collisions between stars are quite common. When two long-lived, low-mass stars interact in these ways, they produce a hotter, bluer star that will be much shorter lived, known as a blue straggler star. First discovered by Allan Sandage in 1953, these young-looking stars arise thanks to stellar cannibalism. So enjoy the brightest and bluest stars in these globular clusters, found right alongside the oldest known stars in the universe.

Learn about a recent globular cluster discovery here: http://tinyurl.com/glob-discovery. Kids can learn more about how stars work by listening to The Space Place's own Dr. Marc: http://spaceplace.nasa.gov/podcasts/en/#stars.

Globular Cluster NGC 6397. Credit: ESA & Francesco Ferraro (Bologna Astronomical Observatory) / NASA, Hubble Space Telescope, WFPC2.

Product Review: Ioptron SkyTracker

Jim Tallman

After seeing a few of these toys pop up in the inventories of various BBAA members, I thought I would share how I came to acquire this fantastic tool. Last December, Kent Blackwell, showed me a new piece of gear that he had bought called a **SkyTracker** made by iOptron. The Skytracker is a DSLR camera mount for wide-field astrophotography, and, as Kent showed me, is very easy to use. Kent told me that he liked it a lot, which for me is high praise as I know Kent always has cool tools. I didn't think much about the mount again until he posted a photo of Orion coming over the trees, and it got my attention again. After some research and my wife telling me happy birthday, I decide to get one, and I haven't looked back.

The SkyTracker package includes the main mounting hardware, a polar scope, and a small carrying case that protects the unit, but is really too small to do anything else. You will also need a nice sturdy ball head tripod mount (not the more familiar tilt and pan heads, folks). Also, the head needs to come off so you can mount the SkyTracker. If your mount already has a ball head (see below) then you won't need to buy one, but if not, add it to the list.

As Kent promised, the mount is *really* easy to set up. I think it took me about 5 minutes to get the mount ready; it actually took me longer to get the camera centered and manually focused! I took a few shots in the back yard while it was partly cloudy to learn how it worked, but it wasn't until I went to the outreach event at the Wakefield 4-H in late February that I really had nice skies to play with. Below are two of the shots I took. Both are 90 second exposures at 400 ISO. The Pleiades shot was taken at a focal length of 255 mm and you can just barely see some nebulosity. The image of Orion was taken at 55mm to get the entire constellation. The Orion Nebula is very bright, and look at all of the stars!

The iOptron SkyTracker portable camera mount makes it easy to take long exposure photographs of the night sky like these of the Pleiades star cluster (left) and the constellation Orion (right) taken by article author and BBAA president Jim Tallman.

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Product Review, continued from page 6

So how well does it work? I love it! I used it at the March Skywatch and was able to introduce some guests to astrophotography that anyone can do. I bet it will be a great tool for tracking meteor showers. The best thing about it, as Kent said, it doesn't take a bunch of gear to get set up and running. The current cost of the entire package is $369 without the ball head or tripod. I highly recommend a rugged mount, otherwise a good breeze will jiggle your camera and mess up your shot.

Pros: Light weight, sets up quick, runs on 4 AA batteries or a DC power source .

Con: None really, except that iOptron could have included the necessary ball head instead of being cheap and making you shell out more cash to make it fully operational.

Available at Adorama Camera, $369 plus shipping

March Outreach Reports

Princess Anne Library "Sleepover"
March 8, 2014

Wow! What a night of astronomy outreach The Back Bay Amateur Astronomers supported a teen "sleepover" at Princess Anne Area Library in Virginia Beach, and the weather cooperated beautifully. After several days of lousy weather, we had a fair night with clear skies, an enthusiastic group of teens and librarians, and a great group of astronomers.

Talk about a good scope-to-observer ratio! We had 14 young people there, and seven (count 'em 7) telescopes! **Chuck Jagow** and **Jim Tallman** set up their 14-inch Orion goto dobs, **Neill Alford** had his Orion 10-inch IntelliScope, **Dino and Mary Giangregorio** were there with their refractor, **Matt McLaughlin** brought his 6-inch StarBlast, **Leigh Anne Lagoe** had her 8-inch Orion Dob, and I set up my Orion ShortTube 80 refractor. **Kirk Leppert** was there as well, helping run scopes and taking pictures.

I started the night off indoors with a slide presentation called, "Harry Potter in the Stars", and I pointed out some of the things we would be able to see outside. When we went out to attack the scopes, the kids were able to see the Moon, Jupiter and its Galilean moons, and The Orion Nebula. As the night went on, observers saw Mars, the Pleiades, double stars Mizar & Alcor, and the Cat's Eye Nebula. I used my green laser to point out constellations and certain other features in the cloudless night sky.

By 10:15 pm, it was getting cold and we had covered most of the showpiece items, so we packed up and the kids went back inside. They and the librarians thanked us for a nice time. Chalk up another very successful outreach event!

Plaza Middle School Science Fair
March 11, 2014

Another "wow" night for astronomy outreach! We had a fine turnout of BBAA members: **Dale Carey**, **Bill Powers**, **Leigh Anne Lagoe**, **Mark Gerlach**, **Matt McLaughlin**, and me, **George Reynolds**. Dale started out with his solar coronascope, looking at some awesome prominences. I set up my 80mm refractor and started showing the Moon in the daylight. Matt set up his 6-inch Starblast on display inside, while Mark and Leigh Anne ran the display table, with Leigh Anne demonstrating the Night Sky Network solar system model with a cash register tape. Bill ran our scopes for us when Dale and I needed a break.

After the Sun was gone, Dale and I both showed views of the waxing gibbous Moon. About 7:12 PM, Jupiter popped out of the twilight, and I quickly acquired it in my scope, with Dale following suit. We showed Jupiter and its moons for the rest of the night, even past the 7:30 PM closing time. I counted 165 people who looked through our telescopes: boys and girls, adult men and women, and a few teachers.

Both Reports by George Reynolds

April 2014

BBAA Events	Special Outreach	Astronomical Events
4/03 BBAA Monthly Meeting		4/07 First Quarter Moon
4/11 Garden Stars @ Norfolk Botanical Gardens	4/05 Mt. Trashmore Star Party	4/08 Mars at Opposition
4/18 Skywatch @ Northwest River Park	4/12 Outreach at Carrollton Library	4/15 Full Moon & Lunar Eclipse
		4/22 Last Quarter Moon
4/26 Nightwatch @ Chippokes Plantation		4/29 New Moon

Sneak Peek into May

Thu 5/01/2014 BBAA Monthly Meeting, TCC Campus, 7:30 pm
Fri 5/02/2014 Garden Stars at Norfolk Botanical Gardens, 8:30 pm
Tue 5/13/2014 Boardwalk Astronomy, 24th St. VA Beach, 6:00 pm
Fri 5/23/2014 Skywatch at Northwest River Park
Sat 5/31/2014 Nightwatch at Chippokes State Park, Surry VA.